Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (original) A damper for an air handling system, comprising:
a frame defining an air flow opening;
at least one damper vane moving between first and second positions for regulating air flowing through the air flow opening; and
a stepper motor directly coupled to the vane to move the vane between the first and second positions.

2. (original) The damper of claim 1, further comprising a microcontroller coupled to the stepper motor to control the stepper motor.

3. (original) The damper of claim 1, wherein the stepper motor has at least 24 steps per revolution.

4. (original) The damper of claim 3, wherein the stepper motor has at least 48 steps per revolution.

5. (original) The damper of claim 1, wherein the frame includes an outer wall defining a hole through which a portion of a shaft of the motor extends.

6. (original) The damper of claim 5, wherein the portion of the shaft extending through the hole is directly coupled to the vane.

7. (original) The damper of claim 5, further comprising a hub to directly couple the portion of the shaft to the damper vane.

8. (original) The damper of claim 1, wherein the frame includes two longitudinal portions extending generally parallel to one another and two end portions coupled at

opposite ends of the longitudinal portions and extending parallel to one another, and wherein one of the end portions defines a hole through which a portion of a shaft of the stepper motor extends, the portion of the shaft being directly coupled by a hub to the vane.

9. (original) The damper of claim 1, wherein the stepper motor has at least 48 steps per revolution, wherein each of the 48 steps represents an angular position of a shaft of the stepper motor, and wherein at least two of the 48 steps are designated as the first position at which the vane is closed and the second position at which the vane is open.

10. (original) The damper of claim 1, wherein the stepper motor moves the vane between the first and second positions in less than 10 seconds.

11. (original) The damper of claim 10, wherein the stepper motor moves the vane between the first and second positions in less than 5 seconds.

12. (original) The damper of claim 1, wherein the stepper motor moves the vane between the first and second positions in less than about 1 second.

13. (currently amended) A damper for an air handling system having an air flow opening, the damper comprising:

at least one damper moving between first and second positions for regulating air flowing through the air flow opening; and

a stepper motor ~~for a damper, the damper including at least one damper vane~~ directly coupled to the damper to move the damper between the first and second positions~~, the stepper motor comprising a shaft and at least 48 steps per revolution, wherein each of the 48 steps represents an angular position of the shaft, and wherein at least two of the 48 steps designated as a first position at which the damper vane is closed and a second position at which the damper vane is open~~.

14. (original) A damper for an air handling system, comprising:

a frame defining an air flow opening;

at least one damper vane rotationally coupled to the frame by a hub, the vane opening and closing the air flow opening; and

a control housing coupled to the frame and enclosing a stepper motor and a controller, wherein a shaft of the stepper motor extends through a hole defined by the frame and is directly coupled to the damper vane by the hub to move the vane between open and closed positions, and wherein the controller is coupled to the stepper motor to control the stepper motor.

15. (original) A heating, ventilating, and air-conditioning system comprising:

a source of conditioned air; and

an air-handing assembly coupled to the source of conditioned air, the air-handing assembly including:

a diffuser;

a damper including at least one damper vane and a stepper motor directly coupled to the damper vane and including a plurality of steps to move the damper vane from a first position to a second position; and

a microcontroller coupled to the first and second connectors, wherein the microcontroller controls the stepper moto9r to move the damper vane a portion of the plurality of steps to thereby move the damper vane from the first position to the second position.

16. (original) The system of claim 15, wherein the damper further includes a frame having two longitudinal portions extending generally parallel to one another and two end portions coupled at opposite ends of the longitudinal portions and extending parallel to one another, and wherein one of the end portions defines a hole through which a portion of a shaft of the stepper motor extends, the portion of the shaft being directly coupled by a hub to the damper vane.

17. (original) The system of claim 15, wherein the plurality of steps include at least 48 steps per revolution of the stepper motor, wherein each of the 48 steps represents an angular position of a shaft of the stepper motor, and wherein at least two of the 48 steps are designated as a first position at which the damper vane is closed and a second position at which the damper vane is open.

18. (original) A method for moving a vane of a damper between a first position and a second position, the method comprising:

providing a stepper motor, the stepper motor including a plurality of steps per one revolution of the stepper motor;

directly coupling a shaft of the stepper motor to the vane; and

causing the stepper motor to move a portion of the plurality of steps in a first direction to thereby move the vane from the first position to the second position.

19. (original) The method of claim 18, further comprising causing the stepper motor to move a remaining portion of the plurality of steps in the first direction to thereby move the vane from the second position back to the first position.

20. (original) The method of claim 18, further comprising coupling a microcontroller to the stepper motor to control movement of the shaft of the motor.

21. (new) The damper of claim 13, wherein the stepper motor comprises a shaft and at least 48 steps per revolution, wherein each of the 48 steps represents an angular position of the shaft, and wherein at least one of the 48 steps is designated as a first position at which the damper vane is closed and at least one of the 48 steps is designated as a second position at which the damper vane is open.

22. (new) A damper for an air handling system having an air passing conduit with an air flow passage, the damper comprising:

at least one damper vane rotationally coupled relative to the air passing conduit, the vane opening and closing the air flow passage; and

a stepper motor including a shaft, wherein the stepper motor is directly coupled to the damper vane to move the vane between open and closed positions.